

DISSECTING EQUIPMENT AND MATERIALS FOR THE STUDY OF MINUTE PLANT STRUCTURES¹

At one time the agrostologist's favorite bit of dissecting equipment was a carefully cultured fingernail. However handy this might be, it lacked the precision that artificial equipment may possess. Unfortunately, the average botanist's collection of dissecting equipment is ill-suited to the tasks of dissecting small plant structures and rarely is kept in proper condition. Hooked-tip dissecting needles or blunt prods make the ticklish job of manipulating spikelet parts or similar small structures almost impossible. The following suggestions for the fabrication and care of the basic equipment for handling spikelets and similar organs are the outgrowth of many years of working with grass structures.

The common wooden-handled dissecting needle is one of the most useful and most neglected items of the taxonomist's equipment. By culling over a collection of needles, one can select the strongest for conditioning. They should be pointed on a fine carborundum stone to remove burrs and to give the point a 45° taper. A long needle-point is not desirable, lacking the necessary strength. Final sharpening and polishing should be done on the finest grade of oil stone available. The Behr-Manning HF 873 Hard Arkansas Knife Blade is ideal. The tip should be circular in cross section all the way to the point. The proper sharpening of needles is greatly facilitated by the following method of handling: hold the wooden handle of the needle between the ball of the extended thumb and the second finger, which should be hooked back toward the palm of the hand. The tip of the index finger then lies on top of the tip of the needle, and presses it against the stone. With oil on the stone, slide the needle tip forward and backward over the stone. While thus sharpening the point, the handle of the needle should be rotated between the thumb and the second finger. The point produced by this manipulation will be uniformly tapered and as sharp as desired. Needles should not be

¹Journal Paper #J-4880 of the Iowa Agricultural and Home Economics Experiment Station, Ames, Project 1136.

sharpened by rubbing sideways on the stone, as chatter will ruin the point.

I still treasure a micro-scalpel of pre-war German manufacture, its blade now almost worn away. Since "Ersatz" American-made products available since the war have been very unsatisfactory, we have made our own micro-scalpels by a variety of processes. The most satisfactory tools can be made from the end section of coping-saw blade (.110" wide \times .020" thick). The handle is an ordinary wooden dissecting needle handle with the needle removed. The base of a two inch section snipped from the saw blade is thrust into the wooden handle. The hole may have to be enlarged with a fine drill, and the blade can be firmly set with plastic glue. If desired, the shank of the blade can be strengthened by wrapping it in thin metal from a juice can. The saw teeth can be filed or ground off and the scapel blade roughly shaped in any desired style with wire nippers, a file or coarse stone. Final sharpening should be done on a fine oil stone. The scalpel blade ordinarily should not be over 3 or 4 mm. long and its edge should be sharpened to a V-profile. Extremely thin edges should be avoided, since they will merely roll, rather than cut.

Dissection of tough or rigid plant structures is facilitated by the application of a few drops of the following solution. It penetrates rapidly, is non-staining, and requires no boiling. It may safely be used on herbarium sheets. We dispense it from a miniature polyethylene squeeze-bottle, provided with a medicine-dropper tip.

Diocetyl sodium sulfosuccinate ²	1%
distilled water	74%
Methyl alcohol	25%

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²Sold commercially as "Aerosol OT".